United States
Environmental Protection
Agency

Cleanup Projects Creating New Plant and Wildlife Areas

Torch Lake River Superfund Site
Houghton County, Michigan February 2004

Introducing Brenda Jones

EPA has named Brenda R. Jones as the new remedial project manager or RPM for the Torch Lake Superfund site. Brenda succeeds Steve Padovani as the EPA overseer for the cleanup and restoration project. Steve was promoted to management at EPA's Region 5 office in Chicago. Brenda is a veteran EPA employee who previously did ecological risk assessments on Superfund sites. An ecological risk assessment studies how pollution will affect plants and animals.

Brenda is an expert on aquatic ecology. She holds a bachelor of science degree in biology from Florida State University and a master of arts degree in zoology from Southern Illinois University. She worked for an EPA contractor for eight years before joining the Agency in 1994. Brenda has worked on several Torch Lake issues since 2000 so she's a natural replacement for Steve.

Brenda is an avid nature photographer. She's photographed many parts of the country but thinks the U.P. is one of the prettiest areas in the Midwest. The photos in this fact sheet were shot by Brenda.

Contact us

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These photographs show before and after scenes at the Boston Pond cleanup area. Before the 2003 restoration, Boston Pond was polluted by copper production waste called stamp sand. Very little was growing or living on the stamp sand. The contamination was covered with dirt and seeded with vegetation. Scientists expect the plants will spread and thicken, and birds and small animals will move in.

U.S. Environmental Protection Agency's cleanup and restoration efforts on the Torch Lake Superfund site made excellent progress in 2003. Refuse from copper production activities was covered by dirt caps, and erosion protection was installed in the cleanup areas of Calumet Lake, Boston Pond, Michigan Smelter and nearly half of Isle Royale. Also in 2003, EPA enlisted the help of science teachers and students from four area high schools to help monitor plants and wildlife as the cleanup areas recover from 70 years of copper mine pollution. The students are using the sampling to enrich their science curricula. The partnership with the schools is believed to be the first time EPA involved students to do follow-up monitoring on a Superfund site. In addition, EPA began testing various kinds of grasses and trees on isolated Gull Island to see which species would take hold and cover the polluted ground. Early results from Gull Island were encouraging but the real test will be to see how many plants and trees survive this winter.

Scenic Torch Lake area marred by copper waste

The Torch Lake Superfund site is the name given to an area of Michigan's Upper Peninsula that contains several lakes and ponds as well as portions of Lake Superior contaminated by copper production activities. The site covers a large part of the Keweenaw Peninsula in Houghton Count (see map on page 5). Copper production from the 1890s until 1969 produced waste such as stamp sand and slag that contaminated lake sediment (bottom mud) and shorelines. About 200 million tons of copper tailings, for example, were dumped into Torch Lake alone, filling nearly 20 percent of the lake. The stamp sand was dredged in the early 1900s to reclaim copper, but the waste from that process was dumped back into the lake or on the shore. Few plants or animals grow or live on the bare stamp sand.

EPA began cleaning up the area in 1991 when the Agency removed dozens of buried and sunken barrels containing toxic waste. In the 1990s the region was included on EPA's National Priorities List of Superfund sites. EPA decided the biggest threat to the environment was the copper waste on land, which posed the danger of eroding into the lakes and ponds and harming the small animals that live in the sediment. These animals, such as mussels and tiny insects, serve as food for fish and wildlife. In 1999 EPA began work on cleaning and restoring 800 acres of these stamp sand and slag areas. This fact sheet is meant to update area residents on the cleanup work the last two years and preview upcoming projects.

Restoration makes good progress in 2002, 2003

The 2002 cleanup season saw the completion of the Mason sand area. About 25 acres leftover from the 2001 cleanup were covered with clean sandy soil and then seeded. The rest of the 2002 season focused on a total of 128 acres in the Point Mills area, located on the northwest shoreline of Portage Lake, and the Dollar Bay area, next to the village of Dollar Bay. The Dollar Bay sites were completed in 2002 while the Point Mills areas were finished in 2003.

In the 2003 cleanup season, EPA completed work on the Calumet Lake, Boston Pond, and Michigan Smelter sites and 40 percent of the Isle Royale sand area. Calumet Lake is located on the north side of Calumet, while Boston Pond sits west of U.S. 41 near the Houghton County Airport. Michigan Smelter is about a mile west of the U.S. 41 lift bridge on Canal Road while Isle Royale sits a mile east of Michigan Technological University on U.S. 41.

An environmental technician checks location with a satellite position-finder on the Hubbell/Tamarack City cleanup area. The area is one of the stamp sand sections that has been covered and restored with vegetation. Scientists found the ground teeming with plants and wildlife.

EPA taking Hubbell/Tamarack City acres off Superfund list

EPA and Michigan Department of Environmental Quality previously declared that 114 acres of the Torch Lake site were clean and took those acres off the Superfund list. The two agencies are now in the process of declaring another 145 acres of the Hubbell/Tamarack City cleanup area as completed. EPA is proceeding with taking the Hubbell/Tamarack City portion of the site off the Superfund list. A notice of the intention to delist this portion of the site was published in the Mining Gazette on Jan. 27, 2004, as well as in the Federal Register. If residents want to make a comment about that process they can submit their written comments to one of the EPA employees listed on the front. Comments must be postmarked no later than Feb. 25, 2004, in order to be considered.

Cleanup activities at all these sites included:

- Leveling and grading the areas to be covered;
- Constructing waterways and water diversions;
- Creating access roads;
- Covering the stamp sand with 6 inches of sandy dirt and seeding;
- Putting large rocks or rip rap on shorelines for erosion protection; and
- Installing chain link fences for site security where necessary.

Planned activities for 2004 include finishing the work on Isle Royale. EPA is considering other areas within the Torch Lake site for restoration but has not yet made any decisions.

Cleanup activities create new habitats

The focus of EPA's cleanup was always protecting the water resources (the tiny mud-dwelling animals, fish and wildlife) from stamp-sand erosion on the shoreline. But the act of covering and seeding the contaminated ground also earned a bonus outcome by creating new habitats for birds, small animals and plants. A habitat is where plants and animals can live and reproduce.

In 2002 EPA formed a team of scientists from EPA and U.S. Fish and Wildlife Service to study what effect the cleanup was having on five stamp sand areas. One of the five areas studied, the stamp sand in Gay, Mich., will not be covered and restored under the EPA project. The scientists will use the Gay area as a "control" or comparison point with the other sites.

The five areas were surveyed for signs of birds, plants and wildlife in 2002 and will be monitored in the future. The remaining four areas are Point Mills, Lake Linden, Hubbell/Tamarack City and Mason. The Point Mills location was checked just before it was capped in late 2002. When surveys are done in later years this will be the one area where EPA has data from both before and after the cleanup. The Lake Linden area was covered in 1999, the Hubbell/ Tamarack City site was covered in 2000, while the Mason area was covered in 2001 and finished in 2002.

The scientists found plenty of life on the restored areas. Small mammals such as chipmunks, voles and mice were live-trapped on the cleanup sections, while no animals were caught on uncovered stamp sand. Anywhere from 11 to 19 different bird species were also observed in the restored sections. The amount of plant life especially pleased the scientists. Only six or seven species were planted on top of the soil coverings, but the survey identified 76 different plant species growing there, which had evidently spread from nearby areas. Vegetation covered an average of two-thirds of the restored areas compared with the uncovered sections where very few plants had taken root. This indicated that not only is the cleanup process successful, but also that the stamp sand is being turned from barren, lifeless spots into thriving habitats for wildlife and birds.

Contact us (continues from page 1)

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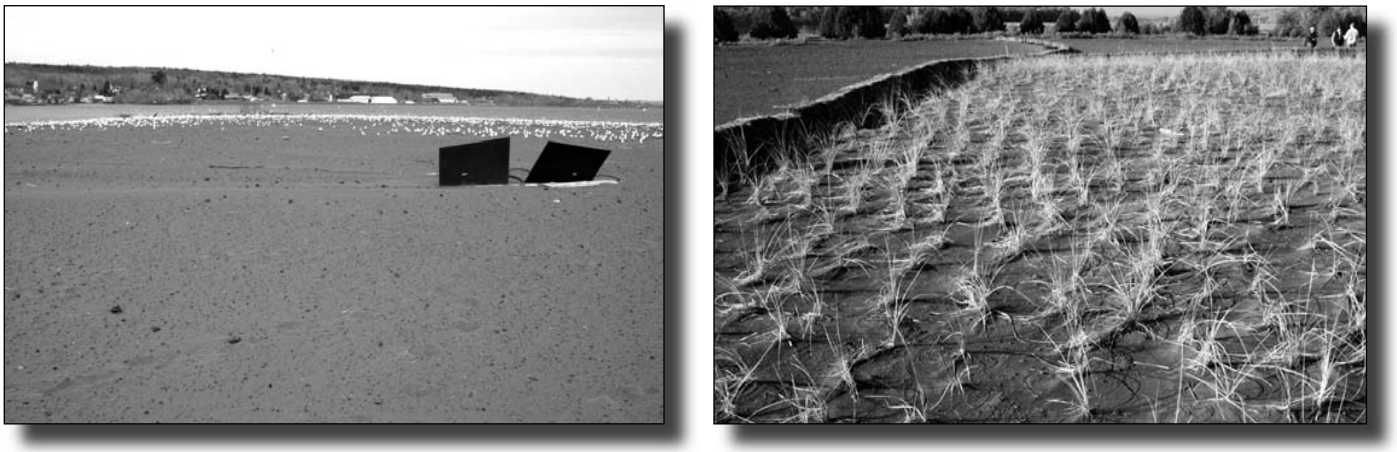


Beach grass takes hold in an experimental plot on Gull Island. Environmentalists could not cover copper slag with a layer of dirt so they are trying to find out what types of plants and trees will grow directly in stamp sand.

Dive-bombing gulls fail to stop planting

The Gull Island cleanup project offered several challenges. The 7-acre island is in Torch Lake off the Tamarack City point and becomes home to hundreds of gulls and Canada geese that nest there each spring. Local residents complained stamp sand was blowing off the island into the lake. EPA decided it wasn't safe or practical to move heavy equipment to the isolated island. The equipment would have been needed to cap the waste with a layer of dirt. Instead, the Agency is testing several plant species to see which ones will grow in the copper slag. Last May employees from EPA, Natural Resources Conservation Service and Michigan Department of Environmental Quality planted 16,000 grass and tree seeds and seedlings. The workers had to brave diving gulls that were protecting their territories. Officials inspected the plants last October and were pleased with the results. More than 95 percent of the beach grass seedlings were growing and spreading while 75 percent of the tree saplings were still alive. On the down side, none of the seeds that were planted sprouted, either because the birds ate them or the seeds just couldn't grow. Officials are hoping the plant and tree seedlings survive the winter. If they do, EPA may follow up with more plantings.

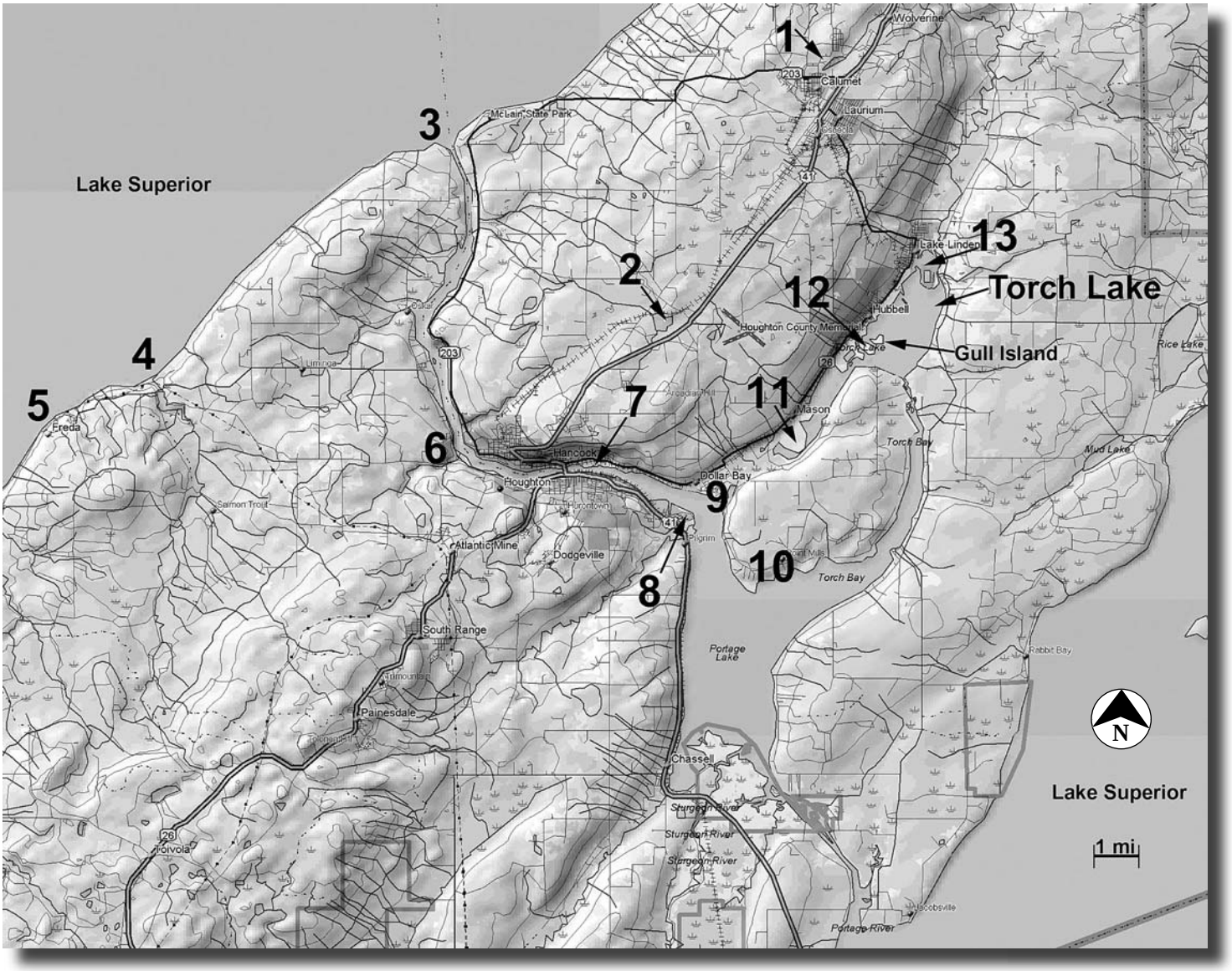
Students watch over restored stamp sand

In August and September 2003, EPA began a unique program for Superfund sites. The Agency along with U.S. Fish and Wildlife Service trained four high school biology and natural science teachers to perform long-term monitoring of soil, plants and birds on Torch Lake areas that have been covered and restored. The teachers were from Dollar Bay, Chassell, Hancock and Lake Linden-Hubbell high schools. Each school was assigned a different cleanup area to survey. The teachers worked the monitoring into their class routines and trained their students to perform surveys of soil fertility, plant growth and bird populations. Animal life won't be measured because traps would have to be checked each day. The teachers have committed to performing the study in late summer for the next three years. The students' work is a continuation of the habitat study begun by the government in 2002.

EPA headquarters in Washington, D.C., found the project so interesting that it sent a film crew to videotape the students collecting data last September. The video will be released in spring 2004 and at the time of release can be ordered free from the Web pages: http://www.ert.org or http:www.ertvideo.org.

Teachers said their students were thrilled by the project because their data collection would actually be used by EPA. Each school will perform some community outreach activities to publicize the survey findings. EPA scientists are enthusiastic about the work because it will give the Agency a total of five years of data on the progress of the stamp sand cleanup.

High school science teachers learn how to take soil and plant samples on a stamp sand area that has been covered and restored. The teachers will train their students to perform long-term monitoring of the Superfund site for EPA.



Torch Lake Site Key

Site Number	Site Name	Construction Status
1	Calumet	Complete
2	Boston Pond	Complete
3	North Entry	
4	Baltic/Atlantic Stamp Mills	
5	Adventure/Trimountain/ Champion Stamp Mills	
6	Michigan Smelter	Complete
7	Quincy Smelter	
8	Isle Royale Sands	40% Complete
9	Dollar Bay	Complete
10	Gross Point/Point Mills	Complete
11	Mason Sands	Complete
12	Tamarack/Hubbell**	Complete
13	Lake Linden*	Complete

* Delisted from National Priorities List

** Currently in process of delisting from National Priorities List

United States
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TORCH LAKE SUPERFUND SITE:
Cleanup Projects Creating New Plant and Wildlife Areas

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Cleanup Progressing Nicely at Stamp Sand Sites

Wildlife and plants return to Torch Lake copper waste sections

Students help EPA monitor restored areas

(Details inside)

EPA planning 2004 meeting

EPA, MDEQ and NRCS plan to meet with area residents sometime in the late spring or early summer. We will meet and discuss the Torch Lake project and the various locations where work has been taking place.

Postcards announcing the meeting will be sent to our regular mailing list, and ads will be placed in the Daily Mining Gazette.